ACC.14
TCT@ACC-i2 | innovation in intervention

A1444
JACC April 1, 2014
Volume 63, Issue 12

Prevention

SYNERGISTIC EFFECT OF IMPAIRED KIDNEY FUNCTION AND MICROALBUMINURIA ON ARTERIAL STIFFNESS IN HYPERTENSIVE PATIENTS

Poster Contributions
Hall C
Monday, March 31, 2014, 9:45 a.m.-10:30 a.m.

Session Title: Prevention: Hypertension II
Abstract Category: 21. Prevention: Hypertension
Presentation Number: 1258-131

Authors: *Panagiota Pietri, Charalambos Vlachopoulos, Nikolaos Ioakeimidis, Mahmoud Abdelrasoul, Ioanna Gourgouli, Christodoulos I Stefanadis, 1st Department of Cardiology, Athens Medical School, Hippokration Hospital, Athens, Greece*

Background: Chronic kidney disease (defined either as eGFR<60 ml/min/1.73 m2 or microalbuminuria > 30 mg/24h) is considered as target organ damage in arterial hypertension and has been associated with increased cardiovascular risk. Arterial stiffness is an independent determinant of cardiovascular and total mortality in several populations including hypertensive patients. The relationship of arterial stiffness with microalbuminuria has been demonstrated in the past, but whether the combination of decreased eGFR and microalbuminuria may aggravate arterial stiffness is not well established.

Methods: We studied 1375 patients with never treated arterial hypertension. Patients were classified into two groups according to eGFR (1. eGFR< 60 ml/h/1.73m2, N=138 και 2. eGFR> 60 ml/h/1.73m2, N=1237) and the presence of microalbuminuria (1. microalbuminuria >30 mg/24h, N=263, 2. normoalbuminuria <30 mg/24h, N=1112), respectively. Arterial stiffness was assessed by measuring carotid-femoral pulse wave velocity (PWV) using the Complior device.

Results: Patients with eGFR < 60 ml/h/1.73 m2 exhibited higher PWV compared to patients with eGFR > 60 ml/h/1.73m2 (9.09±2.06 vs 8.07±1.50 m/s, p<0.001). Accordingly, patients with microalbuminuria had higher values of PWV compared to patients with normoalbuminuria (9.11±1.96 vs 7.95±1.41 m/s, p<0.001). The relationship of PWV with decreased eGFR and microalbumiuria was independent of classic risk factors. When the combined effect of reduced eGFR and microalbuminuria on PWV was studied, a significant synergistic effect was demonstrated after adjustment for age, gender, smoking, BMI and systolic blood pressure (p=0.02).

Conclusions: The combination of microalbuminuria and reduced eGFR has a detrimental, synergistic effect on arterial stiffness in hypertensive patients. Given the adverse prognostic role of arterial stiffness, therapeutic interventions in hypertensive patients should aim to both microalbuminuria reduction and delay (or even regression) of impaired kidney function.